

Govt. of (18) Madras.

To

The Public Works Department

Recd: 27.6.94

Proceedings, dated 20th June 1894
No. 241

Subject.

Sanctioning additional hands to the establishment of the Calingapatam Light-house, requesting the P.W. Dept to take the necessary action for the provision of the extra quarters requisite and directing the P.P.O. to report whether, in view of giving the conservator an increased allowance for superintending the light-house, a full-time Supt would not be preferable.

No. 1673 W. d 5 - July 1894.

Communicated to the Supt & Supt I Circle, who will submit estimate for the quarters referred to in para 4 of the Presiding Port Officer's letter.

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S.D. I Circle
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elevation as well as intensity. The present column gives a range on elevation of 14 miles, which, from the bridge of a large steamer, would become practically 16 miles, and this range is sufficient.

6. From many years' reports from vessels, it is found that on the coasts of this Presidency (more particularly the east coast), the best of the fourth order lights are seen in ordinary weather 16 miles and from 18 to 20 in very clear weather. This result is obtained with a small two-wick burner, and in the light proposed for Calingapatam a large two-wick burner, similar to that at Hope Island, will be supplied.

7. As regards Mr. Ashpitel's remark that fixed lights are now obsolete, I would state that such is not the case. As recently as 1891, a fixed occulting light was placed on the North Foreland, one of the principal headlands on the English coast, and for the purpose of guiding vessels to anchorages and clear of dangers in narrow channels fixed and fixed occulting lights are frequently used.

8. Commander Street was fully aware of the fact that a very considerable increase in intensity would be obtained by the use of a revolving apparatus in preference to a fixed one, but the construction of the column at Calingapatam precluded the employment of this class of light except on the condition of totally rebuilding a large portion of the column or perhaps erecting a new one.

9. An ordinary fixed light with no distinctive feature would lead to vessels from Rangoon bound to Calingapatam mistaking the Calingapatam light for Santipilly or *vice versa*—a mistake which would, in the latter case in all probability, lead to the total loss of a vessel. The occulting shutter provides for giving the light the necessary distinctive character. The present light being red, affords a means of distinction, but the light is only suitable for a harbour light; coast lights dependent on colored media for identification are always unsatisfactory unless provided with very high lamp power, which implies unnecessary expenditure of oil. It was under these circumstances that a fixed white occulting light was decided on—a change involving slight structural alteration in the column and a considerable saving in first cost.

The position of the port and the number of vessels visiting it do not justify incurring the extra expense involved by providing a light column from which to exhibit a flashing or revolving light; but I so far agree with Mr. Ashpitel that, when establishing any new light on the coast for the purposes of general navigation, I would recommend as a rule a revolving light at headlands and shoal promontories which form "turning" points.

Another advantage in an occulting light is as a means of making the anchorage, the fixed periods admitting of taking more careful and reliable bearings than when the light is continually in motion. Briefly, given a suitable column and an anchorage free from dangers, I would give the preference to the revolving light as a means of obtaining economy and efficiency combined.

10. It must be borne in mind that the majority of the coast lights in this Presidency are required partly to enable a vessel to take up a convenient berth at night in an anchorage as well as to identify the port, and for the former purpose a fixed light is more convenient; therefore, however desirable it may be to increase the intensity of new lights, the existing ones should not be altered so long as they meet the requirements of the coasting traffic, of which class the greater number of vessels using the lights is composed.

11. Referring to the concluding portion of para. 4 of Mr. Ashpitel's letter, I would remark that the question of an improved light at Point Divi has already formed the subject of correspondence with Government (*vide* this office No. 1271/267 G., dated 11th July 1891). The proposals then submitted were, however, of too costly a nature, and, as the introduction of a new system of illumination was being carried out on Mr. Douglass' recommendation with the anticipated result of an improvement in the light, the question has not been revived. Point Divi is undoubtedly one of the points on the coast at which the establishment of a good revolving or flashing light is desirable. The apparatus in use at the old lighthouse in Madras is of fair power and, though of an obsolete type, would answer for the promontory above mentioned were there a building suitable for its accommodation and if the reflectors could be fitted with burners adapted to mineral oil in lieu of cocoanut; the extra cost of the latter kind of oil would in about ten years amount to the price of the lenticular

portion of a new third order apparatus. The present lighthouse is most unfavorably situated, being about two miles from the edge of the most seaward portion of the promontory, and I should strongly deprecate any expenditure in altering a building which is distinctly in a wrong position.

12. Any change at Point Divi should be, first, either the establishment of a light similar to the new light provided for Madras for which a new and properly constructed lighthouse must be provided, or, second, if a more economical scheme be required, the provision of a fourth order revolving light with large two-wick burner and an improved lantern. The latter scheme would require slight alteration of the interior of the column to provide for a weight shaft, but I would strongly recommend that a new lighthouse and a better apparatus be sanctioned and the light placed as near the sea as possible.

13. The old light at Point Divi, I am of opinion, should be retained in store for use as a harbour light. In the near future a light will be required at the head of one of the Madras breakwaters and this light would be quite fit for this purpose and could be used with red chimneys if a colored distinction was required.

14. The disposal of the old Madras light received the attention of this office in 1891; at that time there seemed to be no prospect of utilizing it, and the only column on the coast suitable in size and strength for the reception of this heavy and cumbersome apparatus was at Cochin; even there internal alterations would be necessary, and, furthermore, the present light is thoroughly satisfactory since the introduction of the new burners (Douglass). In my recent tour, the inefficiency of the light at Manapad (an important headland to vessels making Tuticorin by way of Cape Comorin) was brought to my notice and has also formed the subject of report by the Port officer, Tuticorin. It is deficient in power and in arc of visibility, and, having in view the probable establishment of a daily service of steamers between Colombo and Tuticorin, the time has now arrived for the establishment of a good light on this headland. It is to this point that I would suggest the transfer of the old Madras light, *provided that arrangements can be made for its use with heavy mineral oil*. A column will be required, but, as the headland stands well above the sea, a height of 30 to 40 feet will provide the necessary "drop" for the clock work weights. As all other lights on the coast will be *fixed*, the unavoidable irregularity in the movement of the light will not lead to mistakes similar to that made by the master of the *Umtata*.

15. In para. 5 of his letter under report, Mr. Ashpitel proposes to postpone the fitting of any occulting apparatus until the result of certain experiments by a foreign Government is ascertained. I would observe that the provision of a good light at Calingapatam is required *now*, and I have explained the unsuitability of a fixed light without any distinctive feature in para. 9 of this report. The occulting system has been brought to great perfection in England and there is much risk in adopting a new kind of apparatus in an out-of-the-way spot far from workshops and mechanics.

16. In conclusion and with reference to para. 7 of Mr. Ashpitel's letter, I would summarise as follows:—

- (1) A new lantern and light is indispensable at Calingapatam.
- (2) It is required as soon as possible and must be distinctive.
- (3) The revolving light recommended by Mr. Ashpitel involves a complete reconstruction of the Calingapatam light column.
- (4) There is an objection to the transfer of the old Madras light to Point Divi which is the doubtful economy owing to unsuitability of the column at Point Divi in its present state and its position.
- (5) That any form of improvement at Point Divi should preferably take the shape of a new column nearer the point and a high powered light.

I would, therefore, request that either the light for Calingapatam, as proposed by Commander Street, may be sanctioned, or that early assent may be accorded to the preparation of estimates for the reconstruction of the Calingapatam column, making it suitable for the exhibition of a revolving light of the fourth order, in which case the indent will be duly amended and resubmitted.

17. The subject of lighthouse establishment and illumination will be dealt with fully in the report of my recent tour. The distribution of old lights according to present proposals and previous correspondence would be as follows :—

- (1) Old Calingapatam light to Cocanada as harbour light.
- (2) Old Hope Island light to Coondapoor.
- (3) Old Madras light to Manapad if sanctioned and burners can be adapted for mineral oil.
- (4) Manapad light to Tellicherry where a new light is much needed.
- (5) Old Point Divi light (if a new one is sanctioned) to be kept in reserve for issue as Madras harbour light.
- (6) Old Coondapoor light and steel mast to be kept in store for issue at any minor port where a light may be subsequently required.

18. Should Government approve the cheaper form of improvement to Point Divi suggested by me, it would necessitate the temporary extinction of the light, in which case the Coondapoor light could be brought into use, supplementing the inferior power of the light by the frequent exhibition of blue lights.

Order—dated 5th June 1893, No. 180, Marine.

In the circumstances stated in the Presidency Port Officer's third letter read above, the indent submitted with his first letter will be forwarded to the Home Government for compliance, and the Public Works Department will be requested to issue the necessary orders for the preparation of plans and estimates for the alteration in the present lighthouse column at Calingapatam proposed in his second letter.

2. The first, second and sixth proposals in para. 17 of Commander Powell's third letter will also be approved, but as regards the third and fourth proposals the Presidency Port Officer will be requested to explain why the present Madras light should be suitable for Manapad and not for anywhere else, and it should be ascertained and reported whether this light can be adapted to mineral oil. With reference to the fifth proposal, the Presidency Port Officer will obtain and submit to Government an estimate for a new column as well as for a new light for Point Divi, and in this connection the cost of transferring the old column and the old light at Madras to Point Divi should also be considered and stated.

(True Extract.)

(Signed) J. F. PRICE,
Chief Secretary.

ORDER—dated 19th June 1893, No. 1627 W., Public Works.

Communicated to the Superintending Engineer, I Circle, for submission of plans and estimates for the proposed alterations in the lighthouse column at Calingapatam; also to other officers concerned for information.

(True Extract.)

(Signed) J. HANNAN,
Ag. Joint Secy. to Govt., P.W.D.,
General, Buildings and Roads Branch.

To the Superintending Engineer, I Circle, with plan.

" " " II "

" " " IV "

" " " VI "

" Marine Department, with one enclosure returned.

Exd. C. A. Munisawmy.

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BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1893} Madras.
PUBLIC WORKS.

Dated June, 19th.

Recd.

Encl.

G.O., 19th June 1893, No. 1627 W.

JUNE.

Lighthouses

Proceedings, Marine Department, on correspondence relative to alterations in the lighthouse column at Calingapatam and distribution of certain old lights, communicated to the Superintending Engineer, I Circle, with instructions; also to other officers concerned for information.

12TH DECEMBER 1893, No. 3217 W., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

READ—the following papers:—

G.O., dated 2nd December 1893, No. 425, Marine.

Read—the following papers:—

Endorsement of the Public Works Department, dated 19th September 1893, No. 871 D.

Endorsement of the Public Works Department, dated 10th November 1893, No. 3705 C., transferring the following letter from F. W. ASHPITEL, Esq., Executive Engineer, Public Works Department, dated 4th Nov. 1893:—

With reference to your endorsement No. 3229 C. of 29th September 1893 forwarding for remarks an estimate for fixing a new lantern and apparatus on the existing lighthouse tower at Calingapatam, I have the honour to point out that the proposals submitted by the Superintending Engineer, I Circle, apparently require considerable modification—

(1) In the estimate the floor of the lamp room and beams on which it rests are proposed to be of wood which can only increase the risk of fire without any compensating advantage. This floor and the beams on which it rests should be of iron with proper arrangements for ventilation from the service room.

(2) The service room is proposed to be constructed of masonry 1' 0" thick owing to the small size of the existing column. This thickness does not appear to be sufficient, and I would suggest, as a more satisfactory arrangement both on the score of stability and appearance, that the structure should be of iron above the existing column. This iron service room may be obtained from England with the rest of the apparatus as it must be designed to fit the lantern base.

(3) As designed there appears to be no attempt to regulate the ventilation through the service room and the result will probably be extremely unsatisfactory.

(4) If the suggestion made above is approved, all that is necessary is to send a plan of the tower to England with a letter explaining what is required.

(5) I do not see in the estimate any provision for an oil store, but possibly there is one in existence.

(6) I am unable to offer any remarks regarding the necessity for the construction of a temporary lighthouse, as I do not know what spare apparatus the Port officer may have in store. If he has a spare port light, it may be exhibited from the existing tower during construction.

Order—dated 2nd December 1893, No. 425, Marine.

The plans and estimate received from the Public Works Department will be returned, through the Presidency Port Officer, for further consideration with reference to Mr. Ashpitel's observations in the first six paragraphs of his letter of the 4th November.

2.

(True Extract.)

(Signed) A. T. PRINGLE,
Assistant Secretary.

From the Acting Presidency Port Officer, to the Chief Engineer, Public Works Department, dated Madras, 7th December 1893, No. 690/229 P.W.

In forwarding herewith G.O., Marine, No. 425, dated 2nd December 1893, and its enclosures, I have the honour to remark as follows with reference to the extract from Mr. Ashpitel's letter of 4th November 1893.

2. The proposal to have an iron service room commends itself to me, and I would suggest it being obtained from England in the manner pointed out.
3. An oil store is already in existence.
4. The plan and estimate for a temporary lighthouse is suitable and the structure necessary.
5. The present port lantern will be exhibited from the platform during the erection of the new light.
6. As the new light is notified for exhibition on May 1st, 1894, I would suggest that the provision of the service room be treated as urgent.

ORDER—dated 12th December 1893, No. 3217 W., Public Works.

The order in the Marine Department No. 425, dated 2nd December 1893, will be communicated to the Superintending Engineer, I Circle, and to Mr. Ashpitel. The latter officer will be requested to furnish the requisite particulars to enable the iron service room proposed by him to be designed and made up in England.

2. It is unlikely that the room will be completed and shipped to this country in time to be erected by the 1st May 1894 as contemplated by the Presidency Port Officer in paragraph 6 of his letter No. 690/229 P.W., dated 7th December 1893.

3. The Superintending Engineer will arrange for the erection of the temporary platform on which the light is to be exhibited while the permanent structure is undergoing alteration.

(True Extract.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

To F. W. Ashpitel, Esq., through the Chief Engineer for Irrigation,
with plans and estimates (4) of the permanent lighthouse.
,, the Superintending Engineer, I Circle,
with plans and estimates (3) of temporary lighthouse.
,, the Marine Department.

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1893} Madras.

PUBLIC WORKS.

Dated December, 12th.

Recd.

Encl.

G.O., 12th Dec. 1893, No. 3217 W.

DECEMBER.

Calingapatam Lighthouse

Proceedings, Marine Department, on proposals for fixing a new lantern and apparatus on the existing tower of the —, communicated to the Superintending Engineer, I Circle, and to Mr. Ashpitel with instructions.

21st MAY 1894, No. 1248 W., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

General.
Account.

READ—the following papers:—

From F. W. ASHPITEL, Esq., Assistant Chief Engineer and Under Secretary to Government, Public Works Department, Irrigation Branch, to the Secretary to Government, Public Works Department (through the Chief Engineer for Irrigation), dated Madras, 2nd January 1894.

With reference to G.O., No. 3217 W., dated 12th December 1893, I have the honour to forward herewith the particulars therein called for so far as the limited information at my disposal will permit. I have not attempted to specify the details of the proposed service room as I believe that these had better be left to the authorities in England who have designed the lantern.

2. A point for consideration is the position of the door in the proposed service room, and this must be fixed with reference to the prevailing winds. If, however, the lantern and apparatus indented for have been designed to show a light all round the horizon, this is a matter which can be settled afterwards and the revised indent need not be delayed for this information.

No. 1 W.

Forwarded.

MADRAS, 8th Jan. 1894. (Signed) R. R. E. DRAKE-BROCKMAN, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

No. 165 C.

Forwarded, through the Presidency Port Officer, to the Superintending Engineer, I Circle, for submission of an indent on the Home Government for the proposed iron service room.

2. The Presidency Port Officer is requested to be good enough to fill in the number and date of the indent for the light apparatus, and the Superintending Engineer will insert the height of the column and submit a plan showing the position of the door of the service room.

3. The return of these papers with the indent is requested.

16th Jan. 1894. (Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

No. 690/11 P.W.

Forwarded. The date of indent is the 3rd February 1893. No number has been given to the indent in this office.

MADRAS, 18th January 1894. (Signed) H. A. STREET, Comdr., R.I.M.,
Ag. Presidency Port Officer.

From G. D. WYBROW, Esq., Superintending Engineer, I Circle, to the Chief Engineer, Public Works Department (through the Presidency Port Officer), dated Dowlaishweram, 2nd April 1894, No. 7 G.N.

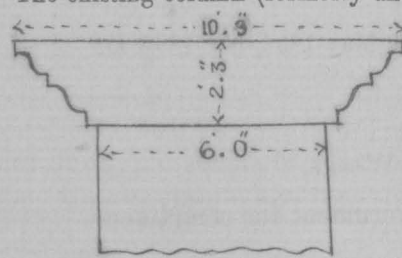
With reference to your endorsement No. 165 C., dated 6th January 1894, herewith returned, I have the honour to forward an indent accompanied by a report for an iron service room to be erected at the top of the present Calingapatam Lighthouse.

2. I regret that I find it impossible to prepare a plan showing the position of the door in the service room with reference to the prevailing wind. I could only show it with reference to the points of the compass, and this would be of little or no use to the makers. The prevailing wind at Calingapatam is south-east for 9 months out of the 12. The door should therefore be placed on the opposite or north-west side. As the new light will illuminate all round the compass, the position of the door, as pointed out by Mr. Ashpitel, can be fixed when putting up the service room.

ENCLOSURE.

REPORT to accompany indent for an iron service room to Calingapatam Lighthouse.

The existing column (formerly an obelisk erected for a land mark) is of masonry 64 feet in height. The top of the column is square of the dimensions shown in the margin.



Service Room.—A new cupola and optical apparatus have already been indented for in indent dated 3rd February 1893. Immediately beneath the lantern room, it is proposed to erect an iron service room 6 feet diameter by 7 feet in height. The service room to be provided with means of ventilation. The service room to be bolted down to the masonry of the column.

Access to the service room will be by means of a small door at the top of the wooden ladder outside the column.

Access to the lantern room to be by means of a ladder inside the service room with a suitable opening in the floor of the lantern room.

Gallery.—To be erected round the lantern room at the top of the service room as shown in the elevation of lighthouse. The gallery to be 1 foot 9 inches wide protected by an iron railing.

No. 690/79 P.W.

Forwarded for the necessary sanction.

MADRAS,
7th April 1894.

(Signed) H. A. STREET, Comdr., R.I.M.,
Ag. Presidency Port Officer.

To the Chief Engineer, Public Works Department.

Telephonic message from the Presidency Port Officer, to the Chief Engineer, Public Works Department, dated 11th April 1894.

With reference to the concluding part of paragraph 2 of letter No. 7 G.N., dated 2nd April 1894, from the Superintending Engineer, I Circle, forwarded to you with this office endorsement No. 690/79 P.W., dated 7th April 1894, please note that the light illuminates only 270 degrees, and not all around the compass. The centre of the light faces nearly due east; the north-west side, as pointed out by the Superintending Engineer, is a suitable place for door of lanterns and service rooms and should be so fitted before leaving England.

No. 1639 C.

Forwarded to the Superintending Engineer, V Circle, in view to the indent being prepared in triplicate and submitted through the Examiner with the usual certificates.

The return of these papers is requested.

12th April 1894.

(Signed) C. H. B. BURLTON,
Under Secy. to Govt., P.W.D.

From J. C. LARMINIE, Esq., Superintending Engineer, V Circle, to the Chief Engineer, Public Works Department (through the Examiner of Public Works Accounts), dated Chépāk, 23rd April 1894, No. 121 W.

With reference to your endorsement No. 1639 C., dated 12th April 1894, returned herewith with its enclosures, I have the honour to forward an indent (in triplicate) on the Director-General of Stores in England for an iron circular service room required for the Lighthouse at Calingapatam.

From the Examiner, Public Works Accounts, dated 10th May 1894, No. 1893 D.

ORDER—dated 21st May 1894, No. 1248 W., Public Works.

The indent will be forwarded to the Home Government for compliance.

[Here enter No. 1249 W., dated 21st May 1894.]

(True Extract.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Superintending Engineer, I Circle.
" Superintending Engineer, V Circle.
" Examiner, Public Works Accounts.
" Marine Department.

Exd. C. A. Munisawmy.
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GENERAL.
ACCOUNT.

Gobt. of {1894} Madras.
PUBLIC WORKS.

Dated May, 21st.

Recd.

Encl.

G.O., 21st May 1894, No. 1248 W.

MAY.

Iron service room for the Calin-
gapatam Lighthouse, Ganjam
District

An indent for a circular —, ordered to be
forwarded to the Home Government for
compliance.

23RD JUNE 1894, No. 1551 W., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

READ—the following papers:—

From Commander H. A. STREET, R.I.M., Acting Presidency Port Officer, to the
Chief Secretary to Government, dated Madras, 6th March 1894, No. 690/67 G.

With reference to G.O., Marine, R. No. 189, dated 31st October 1893,
I have the honour to acquaint you, for the information of the Government, that the
Executive Engineer, Madura district, visited the Lighthouse at Pámban with me
during the early part of December last and that the estimate and plan of the alter-
ation to the lighthouse which I now forward for sanction have been prepared in
accordance with the understanding then arrived at. The cost of the work, Rupees
1,680, will be a general charge against Port funds of the Eastern Group districts.

2. The sum has not been provided in the budget estimate of 1894-95 owing to
the information required regarding the probable cost of the work not having been
furnished until after the budget had been submitted and there being at the time some
uncertainty as to when the work could be taken in hand.

No. 512, Marine.

It is requested that, if not already done, Mr. Ashpitel may be consulted in the
matter and his remarks submitted.

14th March 1894.

(Signed) J. F. PRICE,
Chief Secretary.

From Commander W. J. POWELL, R.I.M., Presidency Port Officer, to the Chief
Secretary to Government, dated Madras, 12th June 1894, No. 690/219 G.

In forwarding a plan and letter from Mr. Ashpitel in connection with the raising
of the Pámban Lighthouse lantern,* I

* *Vide* Marine Department Reference No. 512, dated 14th March 1894, on Current No. 190, herewith returned. I have the honour to request the sanction of
Government to the preparation of an
estimate in accordance with Mr. Ashpitel's

design which meets all the requirements of the case.

2. With the alterations designed in the accompanying plan, the light, which under
present defective conditions has burnt fairly well, will fully meet the wants of the
port and it will not then be necessary to carry out the suggestion made by Mr.
Ashpitel in paragraph 10 of his letter, *i.e.*, to send the former Hope Island light to
Pámban.

3. The old Hope Island lantern is now being set up with a view to experiment
with the Lindberg Trotter occulting apparatus. It is not proposed to utilize this
lantern at Coondapoor—*vide* my No. 1484/161 G., dated 26th April 1894, and
No. 1484/184 G., dated 17th May 1894. It will later on be required for Tellicherry—

vide my No. 1693/168 G., dated 5th May 1894. The former estimate for raising the lantern at Pámban amounted to Rs. 1,680; the present one will probably be somewhat higher.

ENCLOSURE.

From F. W. ASHPITEL, Esq., Assistant Chief Engineer for Irrigation and Under Secretary to Government, Public Works Department, Irrigation Branch, to the Presidency Port Officer, Madras (through the Chief Engineer for Irrigation), dated Madras, 21st May 1894.

With reference to your letter No. 690/50 P.W., dated 17th March 1894, I have the honour to return herewith the plans and estimate connected with Pámban Lighthouse with the following remarks.

2. The optical apparatus is of the 4th order (fixed) and probably has an intensity of about 400 candles with a corresponding range of about 14 miles. The height of the focal plane is 97 feet above high water level, which height is already slightly in excess of requirements. On this ground and also owing to the remarks by Mr. Douglass regarding the faulty design of the tower, I do not think any raising is desirable.

3. The object of the proposed alterations is to provide a service room and to improve the ventilation. The former has, in the design submitted, been effected by raising the tower, but the latter has not been improved either by providing windows in the service room or by improved ventilators in the lantern pedestal and roof. The obstruction to light by both lantern bars and outside railing also remains a maximum and unnecessarily great, as there is not the slightest reason why the lantern should not be provided with a masonry pedestal and the outside railing fixed below the level of the top of the pedestal so as not to obstruct the light.

4. There is a great deal of unnecessary wood work in the estimate, all of which may with advantage be omitted.

5. I enclose a plan showing a proposed approximate section which I have prepared from such details as are available. It is not an easy matter to arrange for a service room in a tower of such small diameter as Pámban Lighthouse without considerable alterations to the existing building. In order to provide headway the existing staircase must be demolished for a certain distance below the proposed service room floor and a steeper staircase provided; otherwise it will be difficult to enter the service room by the opening A. This steeper staircase will also permit of a door being fixed as shown to exclude draughts from the service room and lantern.

6. Above the service room, the floor of which may conveniently be of cement concrete, access to the light room may be by an iron spiral ladder which should be fixed so as not to interfere with the three windows in the service room which ordinarily will form the chief source of supply of air to the burner and lantern through the gratings which form the light room floor.

7. I have not intended to do more than indicate what in my opinion the general arrangement of the tower should be, as I do not know details of the existing staircase or the position of the last step at + 98.12. The general idea is to make access to the lantern as easy as possible and to provide means of regulating the ventilation.

8. The door in the lantern pedestal and the entrance A to the service room should be on the land side, the former facing the point of the compass from which least wind is expected and the latter located so that the keeper shall have ample space to tend the light and will not be obliged to pass between the light and the sea when entering or leaving the lantern.

9. The spiral ladder in the service room should be arranged to occupy as little space as possible and may conveniently be fixed over the entrance A.

10. Before the matter is finally dealt with, I would point out that the existing 6th order lantern at Pámban is too small for the apparatus but of sufficient size for the 6th order apparatus proposed to be installed at Coondapoor. I would therefore suggest that the 4th order lantern said to be available for Coondapoor may be transferred to Pámban and the 6th order lantern now at Pámban installed at Coondapoor. Before sending the 4th order lantern to Pámban, it may be as well to have it thoroughly overhauled and possibly fitted with an improved roof ventilator.

No. 292 M.

Forwarded.

OOTACAMUND,
31st May 1894.(Signed) R. R. E. DRAKE-BROCKMAN, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

No. 1230, Marine.

Approved and transferred to the Public Works Department with the request that a revised estimate for alterations according to Mr. Ashpitel's design may be prepared at an early date.

(Signed) J. F. PRICE,
Chief Secretary.

18th June 1894.

ORDER—dated 23rd June 1894, No. 1551 W., Public Works.

Communicated to the Superintending Engineer, VI Circle, in view to the preparation of the required estimate.

(True Extract.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Superintending Engineer, VI Circle, with enclosures.
„ Marine Department.

Bd. C. A. Manisawmy,
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BUILDINGS AND ROADS.
CIVIL WORKS.

Gobt. of {1894} Madras.
PUBLIC WORKS.

Dated June, 23rd.

Recd.

Encl.

G.O., 23rd June 1894, No. 1551 W.

JUNE.

Pamban Lighthouse

Marine endorsement on Presidency Port officer's letter for the preparation of revised estimate in accordance with Mr. Ashpitel's design for alterations to the —, communicated to Superintending Engineer, VI Circle.

Accompaniment to G.O., No. 1609 IV., dated 28th June 1894.
STATEMENT of requirements on account of Provincial incomplete works of 1893-94.

Division.	Item number.	Name of work.	Amount of estimate.	Number and date of sanction.	Past expenditure.	Balance of estimate.	Amount applied for for 1894-95			Amount allotted		Remarks.
							For in-complete works.	For new works.	For in-complete works.	For new works.	Item number.	
1	2	3	4	5	6	7	8	9	10	11	12	13
Ganjām	1	CIVIL BUILDINGS. Major Works. Combined office for the Stationary and the Town Sub-Magistrate at Berhampur.	12,800	G.O., No. 1187 W., dated 2nd May 1893.	6,280	6,520	1,485	..	1,485	..	1	From the Provincial reserve in addition to the budget grant of Rupees 6,635. Revised estimate should be expedited.
	2	Additions and alterations to the Hill Jail at Pārvatipuram.	13,300	G.O., No. 2198 W., dated 9th August 1892.	8,475	4,825	..	..	..	..	2	A sum of Rs. 5,119 having been provided for the work in the budget, the excess provision, Rs. 294, is resumed and added to the reserve. From the Provincial reserve.
Gōdāvari Eastern.	3	Constructing a District Munsif's Court at Rajahmundry.	12,700	G.O., No. 1519 W., dated 17th May 1892.	10,913	1,787	1,787	..	1,787	..	3	An allotment of Rs. 1,270 having been made for the work in the budget, the excess provision, viz., Rs. 368, is withdrawn and added to the reserve. From the Provincial reserve.
	4	Constructing a single central circular kitchen in the Central Jail at Rajahmundry.	3,270	G.O., No. 431 W., dated 15th February 1894.	2,368	902	..	..	..	..	4	From the Provincial reserve.
Do.	5	Constructing a District Munsif's Court at Tanuku.	18,440	G.O., No. 1668 W., dated 26th June 1893.	16,269	2,171	2,171	..	2,171	..	5	From the Provincial reserve.
	6	Constructing a Head Assistant Collector's office at Bezvada.	20,400	G.O., No. 600 W., dated 3rd March 1894.	20,046	354	654	..	654	..	6	Do. do. Supplemental estimate should be expedited.
Do.	7	Constructing a 1st-class Taluk office at Maalipatnam.	36,400	G.O., No. 83 W., dated 16th January 1893.	35,372	1,028	1,028	..	1,028	..	7	From the Provincial reserve.
	8	Constructing a Sub-Registrar's office at Sattenapalle.	4,530	G.O., No. 3284 W., dated 1st December 1892.	2,781	1,749	1,749	..	1,749	..	8	Do. do. A further allotment will be made later in the year if practicable.
Do.	9	Constructing a Head Assistant Collector's office at Gudur.	36,040	G.O., No. 1454 W., dated 31st May 1893.	16,569	19,471	20,000	..	20,000	..	9	Do. do. A further allotment will be made later in the year if practicable.
	10	Constructing a Deputy Collector's office at Atmakuru.	21,080	G.O., Nos. 3449 W., dated 17th December 1892, and 1044 W., dated 23rd April 1891.	12,758	8,322	8,322	..	8,322	..	10	From the Provincial reserve.
Nellore	11	Constructing a Sub-Magistrate's office at Pileru.	19,000	G.O., Nos. 3446 W., dated 17th December 1892, and 1034 W., dated 21st April 1894.	16,267	2,733	2,300	..	2,300	..	11	From the Provincial reserve.
	12	Constructing a Sub-Registrar's office at Kāyvelōi.	10,851	G.O., No. 2018 W., dated 26th July 1889.	9,432	1,419	1,419	..	1,419	..	12	From the Provincial reserve.
Do.	13	Constructing a Sub-Registrar's office at Kāyvelōi.	2,775	G.O., No. 3378 W., dated 8th December 1892.	1,264	1,511	1,511	..	1,511	..	13	From the Provincial reserve.

Statement of requirements on account of Provincial incomplete works of 1893-94—cont.

Division.	Item number.	Name of work.	Amount of estimate.	Number and date of sanction.	Past expenditure.	Balance of estimate.	Amount applied for for 1894-95			Item number.	Remarks.
							For in-complete works.	For new works.	For new works.		
1	2	3	4	5	6	7	8	9	10	11	12
CIVIL BUILDINGS—cont.											
Major Works—cont.											
Kurnool	14	Improvements to the Forest bungalow at Nandyal.	2,700	G.O. No. 2754 W., dated 27th October 1893.	1,200	1,500	1,500	..	1,500	..	14
West Coast	15	Constructing a Sea Customs house at Barkur.	6,600	G.O. No. 684 W., dated 13th March 1893.	3,640	2,960	2,960	..	2,960	..	15
Do.	16	Constructing a Sub-Registrar's office at Beindur.	4,270	S.E.'s Register No. 97 of 1891-92.	3,497	773	773	..	773	..	16
Do.	17	Constructing Collector's office at Calicut.	1,04,615	G.O. No. 138 W., dated 15th January 1892.	2,01,240	..	5,000	..	6,000	..	17
Do.	18	Constructing a Sub-Registrar's office at Vayitri.	6,360	G.O. No. 1409 W., dated 25th May 1891.	2,798	3,562	3,562	..	3,562	..	18
Do.	19	Constructing six Police huts at Sultan's Battery.	3,230	S.E.'s Register No. 12 of 1891-92.	1,860	1,370	1,370	..	1,370	..	19
Do.	20	Improvements to the Central Jail at Salem.	3,080	G.O. No. 2199 W., dated 29th August 1893.	406	2,674	1,000	..	1,000	..	20
Salem	21	Improvements to clerks' quarters attached to the Deputy Tahsildar's office at Yercaud.	4,250	G.Os., Nos. 2084 W., dated 3rd August 1891, and 3085 W., dated 29th November 1893.	3,536	714	750	..	750	..	21
Do.	22	Deepening the main gate well at the Central Jail, Coimbatore.	5,650	G.O. No. 562 W., dated 20th February 1892.	1,062	4,588	4,588	..	4,588	..	22
Coimbatore	23	Constructing a Sub-Registrar's office at Palladam.	3,300	G.O. No. 1806 W., dated 10th July 1893.	1,214	2,086	2,986	..	2,086	..	23
Do.	24	Constructing a Sub-Registrar's office at Udumalpet.	3,250	G.O. No. 2178 W., dated 24th August 1893.	138	3,112	3,112	..	3,112	..	24
Do.	25	Constructing a Sub-Registrar's office at Dharpuram.	3,250	Do.	1,702	1,548	1,548	..	1,548	..	25
Do.	26	Constructing a Sub-Registrar's office at Erode.	3,360	G.O. No. 2262 W., dated 2nd September 1893.	1,411	1,949	2,000	..	2,000	..	26
Do.	27	Constructing out-houses and compound wall to the Deputy Tahsildar's cutcherry at Aravakurichi.	3,400	Sanctioned by the Superintendent Engineer.	1,000	2,400	2,400	..	2,400	..	27
North Arcot	28	Constructing a 1st-class Taluk office at Chendragiri.	31,580	G.O. No. 210 W., dated 23rd January 1894.	16,958	14,622	17,520	..	17,520	..	28
Do.	29	Constructing a 1st-class Taluk office at Wandiwash.	34,850	G.Os., Nos. 1027 W., dated 13th April 1893, and 1033 W., dated 21st April 1894.	25,006	9,844	4,680	..	4,680	..	29
Do.	30	Additions to the quarantine ward, Central Jail, Vellore.	4,000	S.E.'s Register No. 26 of 1892-93.	3,953	47	1,350	..	1,350	..	30

Do.	31	Constructing a Sub-Registrar's office at Thiruvettiyur.	3,750	S.E.'s Register No. 23 of 1892-93.	1,025	2,725	970	..	970	..	31	From the Provincial reserve in addition to the budget grant of Rupees 1,750.
Do.	32	Constructing a boundary wall round the cemetery at Pakala.	2,512	S.E.'s Register No. 38 of 1892-93.	855	1,657	1,650	..	1,650	..	32	
South Arcot	33	Constructing District Munsif's Court at Tirukkóyil with shed for witnesses.	15,050	G.Os., Nos. 2650 W., dated 10th October 1893, and 603 W., dated 3rd March 1891.	13,858	1,192	1,000	..	1,000	..	33	From the Provincial reserve.
Do.	34	Constructing a Sub-Registrar's office at Bhuvanagiri.	2,980	G.O., No. 777 W., dated 21st March 1893.	1,490	1,490	1,490	..	1,490	..	34	
Negapatam	35	Constructing ten Police huts at Nidamangalam.	2,960	G.O., No. 2348 W., dated 27th October 1891.	2,929	31	700	..	700	..	35	From the Provincial reserve in addition to the budget grant of Rupees 1,230.
Do.	36	Constructing a Sub-Registrar's office at Adichapuram.	2,570	G.O., No. 2318 W., dated 20th August 1892.	340	2,230	950	..	950	..	36	From the Provincial reserve in addition to the budget grant of Rupees 3,450. No further allotment can be made at present.
Madura	37	Constructing nine head and forty-eight constables' huts for the Reserve Police at Madura.	19,400	G.O., No. 27 W., dated 8th January 1894.	6,000	13,400	9,950	..	5,000	..	37	
Consulting Architect.	38	Constructing coach-houses and stalls outside the North gate, Fort Saint George, for Civilian officers.	9,583	G.O., No. 1727 W., dated 1st July 1893.	8,936	647	647	..	647	..	38	From the Provincial reserve.
Do.	39	Improving the water-supply, Government House, Guindy.	7,000	G.O., No. 2265 W., dated 4th September 1893.	2,608	4,392	4,392	..	4,392	..	39	
Do.	40	Additions to the Government Press Buildings at Madras.	15,900	G.O., No. 362 W., dated 10th February 1894.	5,992	9,908	9,908	..	9,908	..	40	
Total, Civil Buildings, Major Works ..			..	..	..	..	1,30,282	..	1,20,332	..	41	
COMMUNICATIONS.												
Major Works.												
Ganjam	41	Constructing Ichchhapur-Jarada road.	39,400	G.O., No. 1544 W., dated 9th June 1893.	36,495	2,905	2,000	..	2,000	..	41	
Do.	42	Metalling the road from Kalingia to Tekkalali.	7,230	G.O., No. 1087 W., dated 4th April 1892.	6,195	1,035	1,035	..	1,035	..	42	
Do.	43	Constructing an iron girder bridge at Mahasinghi.	41,200	G.O., No. 2465 W., dated 15th September 1890.	28,878	12,322	7,322	..	7,322	..	43	From the Provincial reserve.
Do.	44	Metalling the road from Govindapur to Lohagudi.	9,670	G.O., No. 1172 W., dated 27th April 1893.	522	9,148	9,148	..	9,148	..	44	
Do.	45	Constructing Mohanagiri Ghat road.	12,000	G.O., No. 17 W., dated 8th January 1894.	43	11,957	8,957	..	8,957	..	45	
Do.	46	Constructing a road from Kallikota to Boyarani.	71,200	G.O., No. 816 W., dated 28th March 1894.	7,275	63,925	5,000	..	5,000	..	46	
Total, Communications, Major Works ..			..	..	..	..	33,462	..	33,462	..		

Statement of requirements on account of Provincial incomplete works of 1893-94—cont.

Division.	Item number.	Name of work.	Amount of estimate.	Number and date of sanction.	Past expenditure.	Balance of estimate.	Amount applied for for 1894-95		Amount allotted		Item number.	Remarks.
							For in-complete works.	For new works.	For in-complete works.	For new works.		
	1	3	4	5	6	7	8	9	10	11	12	13
		Civil Buildings.	RS.		RS.	RS.	RS.	RS.	RS.	RS.		
		Minor Works.										
		Constructing a Police station-house at Pithapuram.	2,380	S.E.'s Register No. 88 of 1893-94.	392	1,988	1,988	..	1,988	..	47	
		Constructing a Police station-house at Tuni.	2,280	S.E.'s Register No. 21 of 1893-94.	1,216	1,064	1,064	..	1,064	..	48	
		Constructing a ryots' shed for the District Munsif's Court at Marapur.	1,360	S.E.'s No. 2013, dated 7th October 1892.	786	574	574	..	574	..	49	
		Constructing a 3rd-class Police station-house at Arumbakum.	1,300	S.E.'s Register No. 37 of 1893-94.	103	1,197	1,271	..	1,271	..	50	
		Total, Civil Buildings, Minor Works ..	..		..	..	4,897	..	4,897	..		
		Grand Total, Works ..	..		..	..	1,68,641	..	1,68,691	..		
												From the Provincial reserve.

28TH JUNE 1894, No. 1609 W., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

General Account.

READ—the following papers :—

From the Superintending Engineer, I Circle, dated 9th May 1894, No. 96 G.L.

"	"	I	"	"	8th June	"	"	151 V.Z.
"	"	II	"	"	22nd May	"	"	—
"	"	II	"	"	9th June	"	"	525 K.S.
"	"	III	"	"	25th May	"	"	528.
"	"	III	"	"	25th "	"	"	529.
"	"	III	"	"	25th "	"	"	530.
"	"	IV	"	"	11th May	"	"	—
"	"	IV	"	"	18th "	"	"	211 W.
"	"	V	"	"	19th "	"	"	161 W.
"	"	VI	"	"	8th "	"	"	257 T.C.

" Consulting Architect to Government, dated 8th June 1894, No. 658.

ORDER—dated 28th June 1894, No. 1609 W., Public Works.

With the papers recorded above, Superintending Engineers and the Consulting Architect submit statements of requirements under Provincial for incomplete works of 1893-94 and for new works proposed to be undertaken during the current official year.

2. In the budget of the current year, a sum of Rs. 1,71,423 was reserved for incomplete works, and this was subsequently raised to Rs. 2,00,807 by modifications of grants. A further sum of Rs. 662 becomes available from the works shown in the margin, the budget grants being in excess of the balance of estimate. Adding this amount, the Provincial reserve will stand at Rs. 2,01,469.

3. The following allotments are sanctioned, details being given in the annexed statement :—

	RS.
Civil Buildings, Major Works	1,20,332
Communications do.	33,462
Civil Buildings, Minor Works	4,897
Total	1,58,691

4. Funds have been provided for all the incomplete works brought forward by Deputy Tahsildar's office with out-houses at Ambur. Superintending Engineers with the exception of those in the margin. These works are separately provided for in the budget and the outlay on them should be restricted to the amount of grants there assigned.

5. As regards the allotment required for constructing a single circular kitchen in the Central Jail at Vellore, orders have been passed in separate Proceedings.*

* G.O., No. 1605 W., dated 27th June 1894. 1677 5-2 July
6. A sum of Rs. 5,400, being the unspent balance of the estimate for the Taluk office at Musiri, has been provided in the budget. The amount applied for by the Superintending Engineer is therefore unnecessary.

(True Extract.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

To Superintending Engineers.
„ the Consulting Architect to Government.
„ the Examiner, Public Works Accounts.
„ the Financial Department.
„ the Judicial „
„ the Public „
„ the Ecclesiastical „
„ the Revenue „

GENERAL.
ACCOUNT.

Gobt. of {1894} Madras.
PUBLIC WORKS.

Dated June, 28th.

Recd.

Encl.

G.O., 28th June 1894, No. 1609 W.

JUNE.

Incomplete Works

Orders sanctioning allotments for — of
1893-94 under Provincial.

[G.]
53
5,000-13-2-94.

Marine Department.



PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following paper:—

From the Presidency Port Officer, 29 May
1894. No. $\frac{690}{201}$ 4.

Not Concerned.

With reference to the corres-
-pondence arising with the Marine N.
III, 4 3rd April 1894 regarding an im-
-proved light at Kalinagapattam, I have
the honor to request that the sanction
of Government may be obtained to a
revision of the light house establishment
at that port as specified in the accom-
-panying Proposition statement.

2. There are 2 men attached to
the present light which being merely
a Port light fitted with a common
lamp requires but a little attention
and no systematic watching. The
new apparatus is the first of its kind
to be introduced into this Presidency &
apart from the ordinary attention re-
-quired in connection with the improved
burner it is desirable that there should be

for

for the first six months two men on duty together so that in case of any hitch in the working of the clock the hand apparatus provided may be instantly thrown into gear and steadily worked; after 6 months experience, a further application will be made, should it be considered necessary to retain the services of the two temporary men for a longer period or permanently. I would point out that in the course of the next few years, the occulting system may be extended to other light-houses in the Presidency and it would be advantageous to have a small reserve of men trained in the management of these lights.

3. The Port Conservator now receives an addition of Rupees (20) twenty to his pay for superintending the light-house. The light house is situated $1\frac{1}{2}$ miles away from the Port office and the Conservator's residence. The new light will require considerably more supervision than the present one. The Superintendent will be required to personally see the light lit and machinery started and to frequently make unexpected visits at night. There will thus be an appreciable increase

increase to his duties and it is therefore proposed to raise his pay for light-house duties to that of a 3rd class Superintendent, namely, Rs (50) fifty, per mensem; the proposed increase in establishment and the pay of the Superintendent to take effect from the first of the month previous to the exhibition of the new light which will probably be January 1st 1896.
4. As the establishment is to be increased, quarters for two more keepers will be required and the cost being likely to exceed Rupees (500) Five hundred, I request that the sanction of Government may be accorded to the preparation of the necessary estimate by the Public Works Department.

Order 20 June 1894 No. 241.
The entertainment of the additional hands asked for is sanctioned. Instead of giving the Conservator an increased allowance the Government considers it would be preferable to have a Superintendent who could devote his whole time and attention to the light. The Presidency Port office will report on the point and will state whether if the suggestion is adopted it

it will be necessary to grant the
conservator any allowance

2. The Public Works Department
will be requested to take the necessary
action for the provision of the extra
quarters requisite.

3. The proposition statement
will be retained for the present.
(True Extract)

Dishpull

Secretary P.W.D.,
for his reply

to

The Presidency Port Office
Public Works Department

6/11

all things necessary to grant the
conservator any allowance
The Public Works Department
will be requested to take the necessary
action for the provision of the extra
quarters requisite.
The proposition statement
will be retained for the present.
(True Extract)

Dishpull

Secretary P.W.D.,
for his reply

The Presidency Port Office
Public Works Department

6/11

GOVERNMENT OF MADRAS.
PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

READ—the following paper :—

G.O., dated 5th June 1893, No. 180, Marine.

Read—the following papers :—

From the Presidency Port Officer, Madras, dated 3rd Feb. 1893, No. 690/50 G.

ABSTRACT.—Forwarding an indent for the new light proposed for Calingapatam.

From the Chief Engineer for Irrigation, dated 21st February 1893, No. 14 W.

From the Presidency Port Officer, Madras, dated 24th March 1893, No. 690/19.

In continuation of this office No. 690/17, dated 11th January last, I have the honour to inform you that, on further consideration, I think some slight alteration in the present column at Calingapatam will be necessary to ensure the satisfactory working of the light. The alteration I propose is to add from 6 to 8 feet to the height of the column in the form of a service room which will improve the ventilation of the lantern and is an indispensable convenience in a light of this class.

I, therefore, request that the sanction of Government may be accorded to the preparation of the necessary estimate by the Public Works Department. The cost will probably be under Rs. 1,000. A sketch showing the proposed alteration is enclosed for inspection and return.

From the same officer, dated 5th May 1893, No. 690/136 G.

With reference to the letter from Mr. F. W. Ashpitel sent to me with your No. 450, dated 8th March 1893, and herewith returned, I have the honour to submit the following remarks.

2. The light proposed for Calingapatam is not intended solely as a guide to clear the "Satara" reef situated about $\frac{3}{4}$ mile off shore, but as a general coast and port light to enable steamers to make the port and anchorage. It would no doubt be advantageous if the reef could also be marked by day and by night, but the port is a small one and its requirements cannot be met regardless of expense. The question of marking the site of the reef by a buoy will be dealt with in the report of my recent tour.

3. As regards the inefficiency of the present lighthouse and apparatus, I am completely in accord with Mr. Ashpitel.

4. The improvement to the light necessitates—

- (a) the provision of a new apparatus with a lantern ;
- (b) alteration of the column to arrange for the necessary service room and ventilation as the existing tower is solid.

The estimate of £578 is merely for the apparatus required from England and a further estimate for additions to, or rebuilding a portion of, the column is required.

5. With regard to Mr. Ashpitel's remarks concerning the range of the light, I would observe that the matter was fully considered by Commander Street when framing the indent. The ranges quoted by Mr. Ashpitel apparently are not based on